User Manual

SC51T

PTN Compact Scaler Switcher

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Version: SC51T (with PoC) 2013V1.0

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NOTICE:

1. Please read this user manual carefully before using this product.

2. The item PoC is short for Power over Cable.

3. The receiver works with SC51T can only be TPHD402PR.

4. The item "far-end" means the device (e.g. display device, 3rd party RS232 device etc) connected with TPHD402PR.

5. Take notice to 4.6 Instructions of VGA Converting Cable when using.

Update History

Version	Date	Update Content
1.0	2013.11.19	First version.

Table of Contents

1. Introduction

1.1 Introduction to SC51T

SC51T is a compact mini scaler switcher with 5 video inputs (3 HDMI, 2 VGA) and 6 audio inputs (3 HDMI audio & 2 VGA audio: switched following the video; 1 MIC audio input). As the VGA input supports VGA, YPbPr and C-video, so the scaler switcher is compliant with multiple video signals.

SC51T scales & switches any video signal to HDMI output and HDBaseT output (supports PoC, connects with TPHD402PR, max transmission distance is 60 meters).

And with 1 IR IN, 5 IR OUT & 1 RS232, IR & RS232 signal can be transmitted bi-directionally between SC51T and TPHD402PR.

1.2 Features

- Compliant with HDCP.
- Supports CEC, with commands to enable/disable this function.
- Supports video source auto-switching function.
- Bi-directional IR & RS232 control.
- Output resolutions selectable to assure preferred output, and supports various output resolutions, such as 1920x1200, 1920x1080, 1600x1200, 1360x768, 1280x800, 1280x720, 1024x768.
- VGA video supports C-video, YPbPr and VGA.
- Supports online software upgrading.
- 48V phantom power to support condenser microphone.
- MIC port supports balance/unbalance signal, suppress the external noise effectively.
- 3-level MIC input, supports condenser microphone, dynamic microphone and wireless microphone.
- Controllable via button, IR & RS232.
- Powerful OSD function.

1.3 Package Contents

- ➢ 1 x SC51T
- ➢ 2 x Mounting ears (separate from SC51T)
- ➢ 1 x Power Adapter (DC 12V)
- ➢ 1 x IR remote (Cell battery is not included)
- ➢ 1 x IR receiver (with carrier wave)
- ➢ 5 x IR emitters

- ➢ 1 x RS232 cable
- ➢ 2 x VGA converting cables (male VGA to female YPbPr, length: 400 mm)
- ➢ 7 x Captive screw connectors
- ➢ 4 x Screws (black color)
- ➢ 6 x Plastic cushions
- ➢ 1 x User Manual

Notes：Please confirm if the product and the accessories are all included, if not, please contact with the dealers.

2. Product Appearance

2.1 SC51T Front Panel
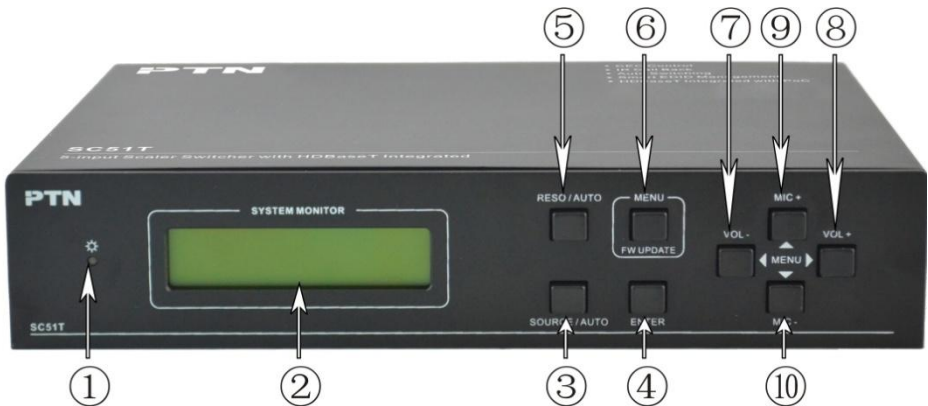
① Power indicator.
  Turns red when power on, turns green when in standby mode.

② LCD screen
  Shows the real-time system working status.

③ SOURCE/AUTO
  ● Used as video source selection button, press to select one source, press again to select next source, switching circularly between HDMI1, HDMI2, HDMI3, VGA1 and VGA2. The LCD screen will show the name of selected source.
  ● Used as switching mode selection button, press and hold on **3 seconds or more** to enter in Auto-switching mode, press and hold on **3 seconds or more** again to enter in Manual-switching mode.

④ ENTER
  Used to confirm selection when in menu.

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⑤ RESO/AUTO
- Used as output resolution manual switching button, select between 1360x768, 1280x800, 1280x720, 1024x768, 1920x1200, 1920x1080 and 1600x1200.
- Used as output resolution switching mode selection button, press and hold on **3 seconds or more** to enter in Auto-switching mode, press and hold on **3 seconds or more** again to enter in Manual-switching mode.

⑥ MENU/FWUPDATE
- Used as menu button, press it to enter in OSD menu.
- Used as software updating button, press and hold on **7 seconds or more** to enter in software updating procedure.

⑦ VOL-
- Used as volume down button.
- Used as direction button NEXT when in menus.

⑧ MIC+
- Used as MIC volume up button.
- Used as direction button MOVE UP when in menus.

⑨ VOL+
- Used as volume up button.
- Used as direction button PREVIOUS when in menus.

⑩ MIC-
- Used as MIC volume down button.
- Used as direction button MOVE DOWN when in menus.

2.2 SC51T Rear Panel

① AUDIO INPUT

3 HDMI audio & 2 VGA audio inputs. User can choose any one audio (embedded HDMI audio or external input audio) for HDMI audio input by using RS232 commands.

② AUDIO OUTPUT

Audio output port, the audio comes from the input audio corresponding to the selected video source and mixed with MIC audio.

③ IR OUT

5 ports in total. Connects with IR emitter, used to control local source device or SC51T from remote, switches following the corresponding video source.

④ IR IN

Connects with IR receiver (with carrier wave only), to receive IR signal send by the IR remote or remote controller of other input/output device.

⑤ FIRMWARE

USB port, connects with USB flash disk or other storage which is with update file inside, to update the system firmware.

⑥ RS232

Serial control port, 3p captive screw connector, connects with a control device (such as a computer) to control SC51T or other device connected with TPHD402PR.

⑦ 12V DC

Power port. Connects with the 12V DC power adapter.

⑧ MIC

    a) MIC port, connects with microphone.

    b) Dial switch, 3 levels: 48V phantom power mode (connects with condenser microphone), MIC mode (connects with dynamic microphone) and LINE mode (connects with wireless microphone or line audio).

⑨ VIDEO INPUT

Video input ports, includes 3 HDMI inputs & 2 VGA inputs. VGA ports supports YPbPr, C-video and VGA format. Factory default is VGA format.

⑩ OUTPUT

    c) HDMI local output

   **d)** HDBaseT output, supports PoC.

The audio part of the two ports are same, and is mixed with MIC audio and HDMI embedded audio (output audio), and if disable HDMI embedded audio output, then there will be no audio output through these ports.

3. System Connection

3.1 Usage Precautions

1) System should be installed in a clean environment and has a prop temperature and humidity.

2) All of the power switches, plugs, sockets and power cords should be insulated and safety.

3) All devices should be connected before power on.

3.2 System Diagram
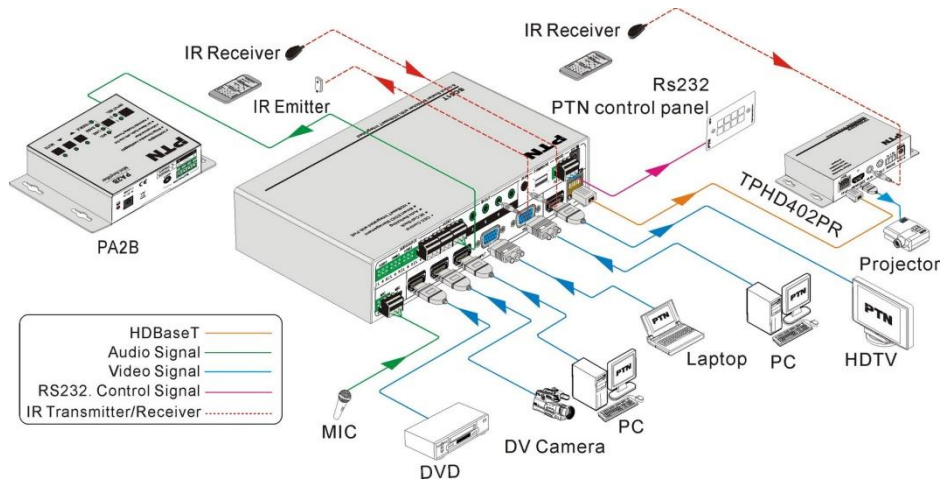
3.3 Connection Procedure

Step1. Connect HDMI source devices (e.g. Blue-ray DVD) to HDMI input ports of SC51T with HDMI cable. Connect VGA source device (e.g. PC) to VGA input ports of SC51T with VGA cable.

Step2. Connect the corresponding audio source to the corresponding AUDIO INPUT port of SC51T with audio cable one to one. The audio of HDMI can be embedded or external by sending right command.

Step3. Connect HDMI display device to HDMI output port of SC51T with HDMI cable.

Step4. Connect TPHD402PR to HDBaseT output port of SC51T with twisted pair.

Step5. Connect speaker, headphone or PTN amplifier to AUDIO OUTPUT port of SC51T.

Step6. Connect control device (e.g. PC) to RS232 port of SC51T or TPHD402PR (bi-directional RS232 control, either is available).

Step7. Both SC51T and TPHD402PR have IR IN and OUT. When one model is used for

IR signal receiver, the IR signal must be sent out by the other model.

For example: When "IR IN" of SC51T connects with an IR receiver, the IR transmitter must connect to IR OUT of TPHD402PR.

The IR signal can be transmitted bi-directionally between SC51T and TPHD402PR.

Step8. Select MIC level and connect right microphone to MIC input port. MIC audio will be transmitted to AUDIO OUTPUT port and mixed with source audio.

Step9. Connect DC12V power adaptor to the power port (TPHD402PR is able to get power from SC51T).
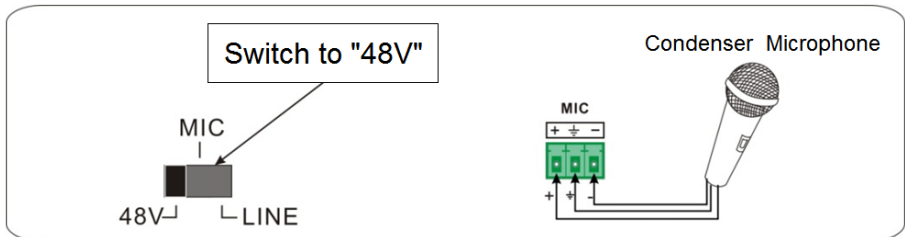
3.4 Connection of Microphone

SC51T provides with one 3-level microphone input, to accommodate different microphone input modes, including 48V phantom power mode, MIC mode & LINE mode.

➢ **48V phantom power input**

When switch to "48V" (It has a good frequency characteristic, high input impedance and high sensitivity in this mode), the MIC input will provide a 48V phantom power. This is only used for **condenser microphone**.

Connection is: "+" connects to positive, "-" connects to negative and "⏚" to ground.

➢ **MIC input**

When switch to "MIC" (It has a low frequency characteristics, and wide frequency response in this mode), the microphone input is used for connecting with d**ynamic microphone**. There are two different connections:

1) Unbalanced connection:
"+" and "⏚" connect to ground, and "-" connects to signal.
"-" and "⏚" connect to ground, and "+" connects to signal.

2) Balanced connection: "+" connects to positive, "-" connects to negative and "⏚" connects to ground.
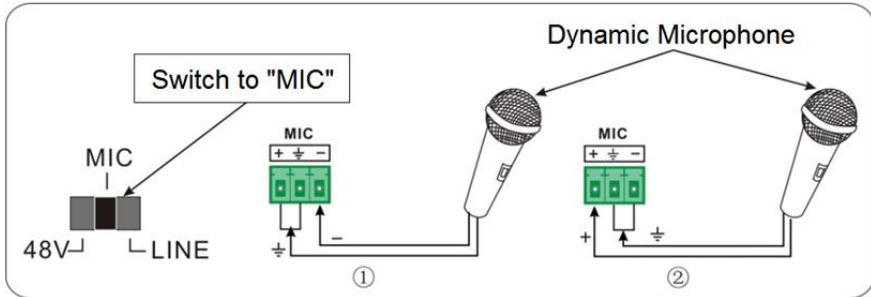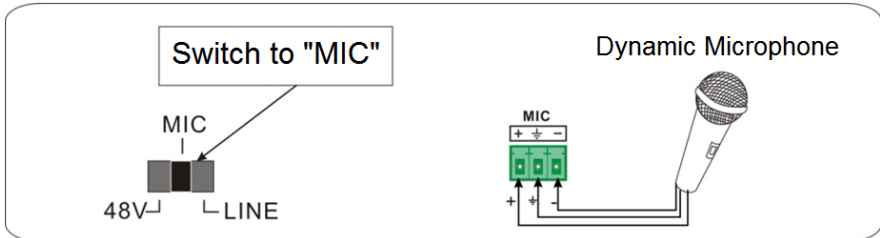

➢ **LINE input**

When switch to "LINE" (It has a low frequency characteristics, and wide frequency response in this mode), the microphone input is used for connecting with line audio or wireless microphone output. There are two different connections:

➢ Unbalanced connection:
"+" and "⏚" connect to ground, and "-" connects to signal.
"-" and "⏚" connect to ground, and "+" connects to signal.

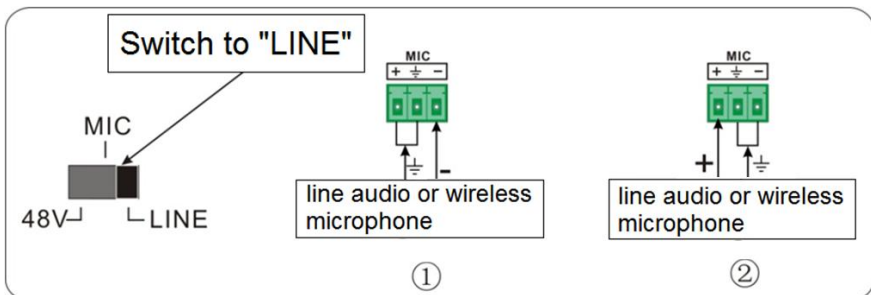b) Balanced connection: "+" connects to positive, "-" connects to negative and "⏚" connects to ground.

3.5 Application
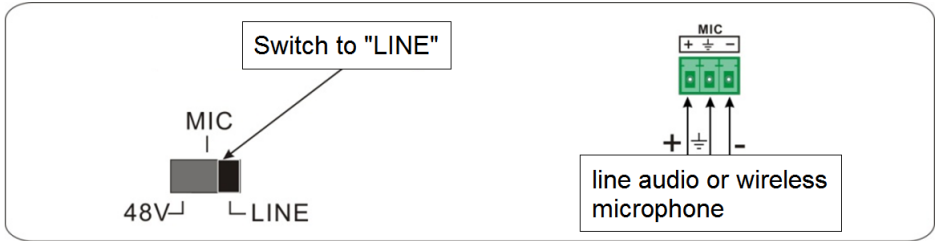
SC51T has a good application in various occasions, such as computer realm, monitoring, conference room, big screen displaying, television education, command & control center and smart home etc.

4. System Operations

4.1 Operations of Buttons

The buttons can be used for output resolution adjusting, switching operations, software updating, volume adjusting and operations in menus.

4.1.1 Resolution Adjusting

Supports auto-adjusting and manual-adjusting. Press and hold on **RESO/AUTO** button for **3 seconds or more** to enter in auto-adjusting/manual-adjusting mode.

Notice: In auto-adjusting mode, SC51T will choose the resolution of the display device at the far-end as the preferred resolution.

If need to choose the resolution of local HDMI display device:
- ☆ Cut off the power of SC51T and break the connection between SC51T and TPHD402PR.
- ☆ Turn on the power of SC51T.
- ☆ Gets the resolution of local HDMI output device.
- ☆ Connect TPHD402PR to SC51T.

4.1.2 Switching Operations

Supports auto-switching and manual-switching. Press and hold on **SOURCE/AUTO** button for **3 seconds or more** to enter in auto-switching/manual-switching mode.

The display result is showed as below:

IN: HDMI1 MANUAL	IN: HDMI1 AUTO
1280 X 720	1280 X 720

The display result will be showed for **2 seconds**.

Auto-switching function

The auto-switching mode follows the listed principles:

➢ **New input principle**
Once detecting a new input signal, SC51T would switch to this new signal automatically.

➢ **Power rebooting principle**
SC51T offers the function to remember the signal last displayed when rebooting. Once rebooting, SC51T will automatically enter in auto-switching mode, and then detect all inputs and memorize their connection status for future rebooting using.

And if the signal last displayed is still available, then it will choose the signal to output. If not, there will be no signal on outputs.

➢ **Signal removing principle**
Once removing the current display signal, SC51T will detect all input signals with priority from INPUT 1 to INPUT 5. It will transfer the signal firstly detected to be available to outputs.

Notice: Auto-switching function works only when input with new signal, remove a signal or power rebooting.

Operation Examples:

● Connect the INPUT 2, INPUT 4, and INPUT 5 ports to the source devices, select INPUT 4 to outputs.

● Press and hold on the front key **SOURCE/AUTO** for **3 seconds or more** to enter in auto-switching mode.

● No signal removing or new input, SC51T just works in auto-switching mode, and take no action (Output from INPUT 4)

● Connect INPUT 3 with a source device, and then it will choose INPUT 3 to output.

● Remove the signal of INPUT 3, SC51T will detect from INPUT 1 to INPUT 5. And when it detects that input 2 is available, it will choose INPUT 2 to output.

● Cut off the power of SC51T, then reboot. As SC51T is in auto-switching mode, then it will choose INPUT 2 to output.

4.1.3 Software Updating

Software updating means to update the inside program of this scaler switcher.

SC51T supports software updating via USB flash disk. The Operation is:

1) Copy the file "**MERGE.bin**" to a USB flash disk. (The "**MERGE.bin**" file is provided/authorized by PTN engineering department or from our website: http://www.PTN-electronics.com)

2) Plug the USB flash disk to the SC51T USB port on its front panel.

3) Press the button "MENU" for **7 seconds or more** to update the software automatically.

Or press this button for **6 seconds** until it comes out an update OSD and then select "Option" → "Software Update" to enter in update procedure.

Or send command **50689%** to update software.

4.1.4 Volume Adjusting

Not in OSD menu, press VOL -- to decrease line volume, VOL + to increase.

Not in OSD menu, press MIC – to decrease MIC volume, MIC + to increase.

4.1.5 Used in OSD Menu

Press **MENU** button to enter in OSD menu, and use **UP**, **DWON**, **LEFT**, **RIGHT** button to select, press **ENTER** button to confirm selection. **MENU** button also can be used to exit present menu level by level until exit the OSD menu.

4.2 Operations of IR

4.2.1 IR Remote

As IR signal can be transmitted bi-directionally between SC51T and TPHD402PR, it is able to use the IR remote at the far-end to control SC51T or HDMI source devices (via CEC function buttons).
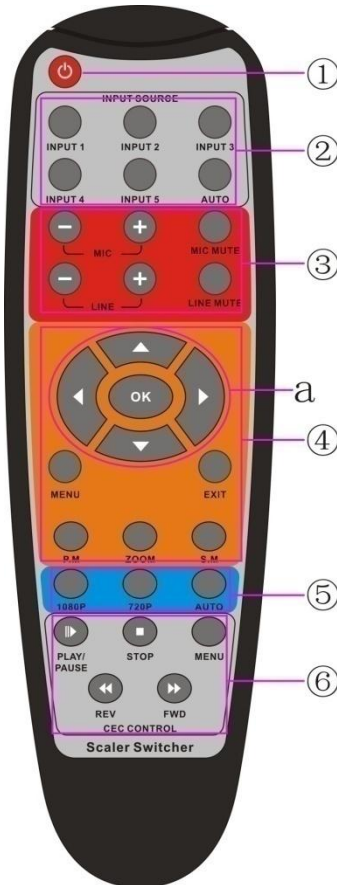
① **Standby button**

To enter in/exit standby mode.

② Input channel selection buttons

INPUT 1 is for HDMI1, INPUT 2 for HDMI2…INPUT 5 for VGA2. **AUTO** button: Enable/disable auto-switching mode.

③ **Volume adjusting buttons**

MIC-/+: decrease/increase MIC volume
LINE-/+: decrease/increase line volume
MIC MUTE: mute/unmute MIC audio
LINE MUTE: mute/unmute line audio

④ **Menu operation buttons**

MENU: press to enter in OSD menu or used to return to previous menu. **EXIT**: exit OSD menu. **OK**: confirm button. ▲,▼,◄, ►: UP/DWON/LEFT/ RIGHT button, for value setting or page-turn, Buttons in area **a** are also able to work in CEC mode to enter the menu of HDMI source device. **P.P, ZOOM, S.M**: shortcut button, to select display mode.

⑤ **Resolution selection buttons**

Select the resolution by pressing corresponding button. **AUTO** is for auto-selecting best resolution.

⑥ **CEC function buttons**

These are for HDMI input signal which supports CEC. Includes PLAY, PAUSE, STOP, MENU, REV (reverse) and FWD (forward).

4.2.2 IR Operations

The 5 IR OUT ports are corresponding to the 5 video inputs one to one, and switch following the corresponding video source.

1) Control far-end device from local

To control SC51T or far-end display device from local by using corresponding remote controller.
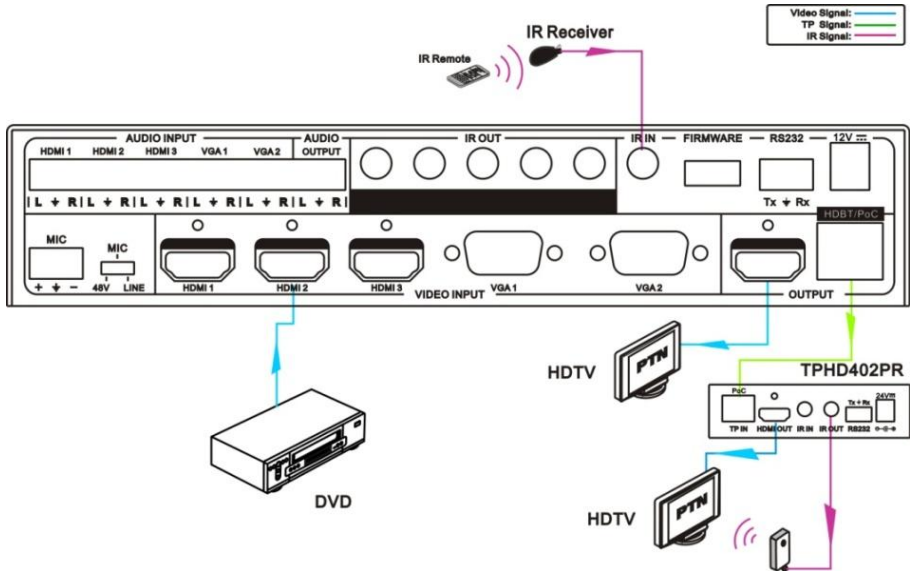
2) Control local device from remote

To control SC51T or local source device from remote by using corresponding remote controller.

4.3 Operations of CEC Function

Supports CEC and CEC standby functions, and can be enabled/disabled through RS232 commands or OSD menu. If the HDMI source device supports CEC, and when SC51T enter in standby/startup mode, then the source device will automatically enter in standby/startup mode.
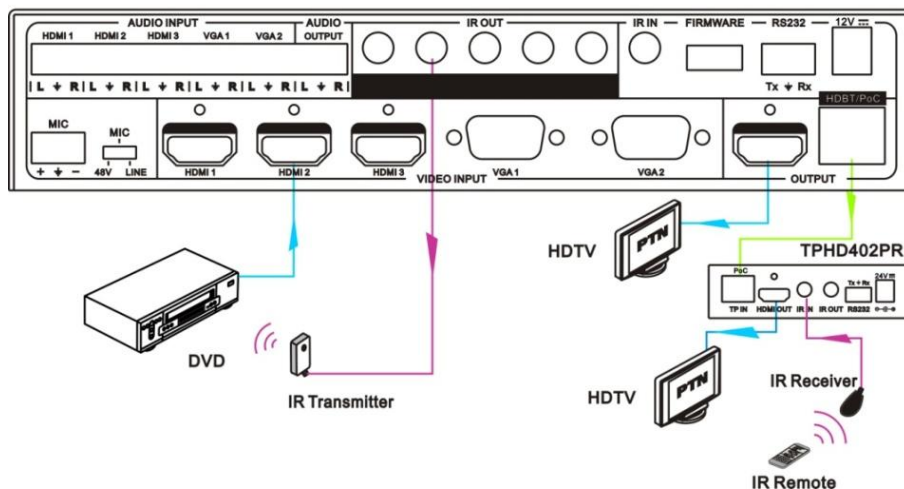
And due to CEC function, user can control HDMI source device with basic operations (play, pause, fast forward, fast reverse, menu etc). So user is able to control SC51T and HDMI source device via the IR remote of SC51T.

Commands for CEC function: "50686%" (enable CEC) and "50687%" (disable CEC).

The working status related to CEC and STANDBY is showed as below:

Situation	Working Status
CEC: on, Standby: on	Press STANDBY button on IR remote, SC51T enters in standby mode, so do all HDMI source devices.
CEC: on, Standby: off	Press STANDBY button on IR remote, SC51T enters in standby mode, HDMI source devices keep on.
CEC: on	Use CEC function buttons, ▲,▼,◄, ► and **OK** buttons on IR remote to control HDMI source devices, include play, pause, fast forward, fast reverse and operations in menu.
CEC: off	Unable to control HDMI source devices through IR remote
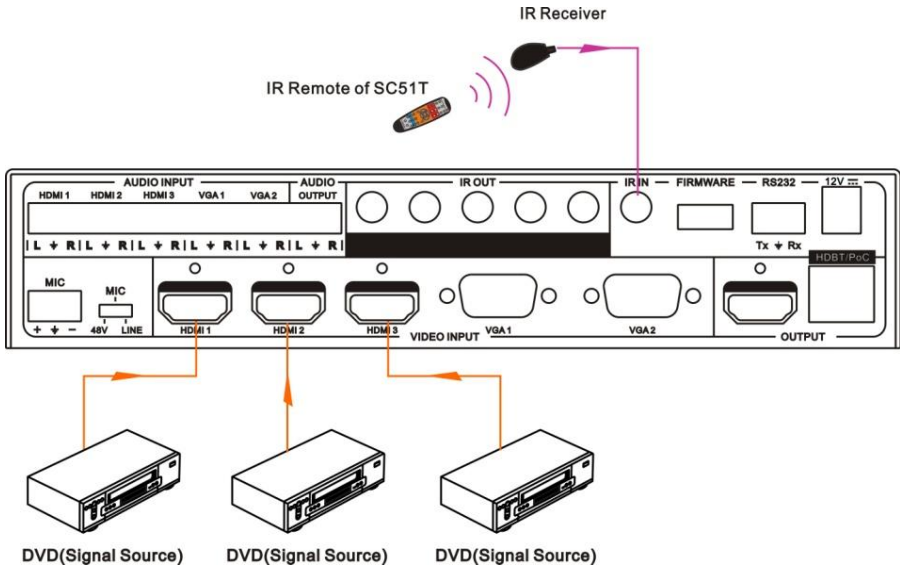
CEC: Control HDMI source devices by IR remote of SC51T

4.4 Operations of RS232 Control

As RS232 can be transmitted bi-directionally between SC51T and TPHD402PR, so it is able to control a third party RS232 device from local or control SC51T from remote. When to control a third party RS232 device, the baud rate of this device should be 2400, 4800, 9600, 19200, 38400, 57600 or 115200.

4.4.1 Installation/uninstallation of RS232 Control Software

● **Installation** Copy the control software file to the computer connected with SC51T.

● **Uninstallation** Delete all the control software files in corresponding file path.
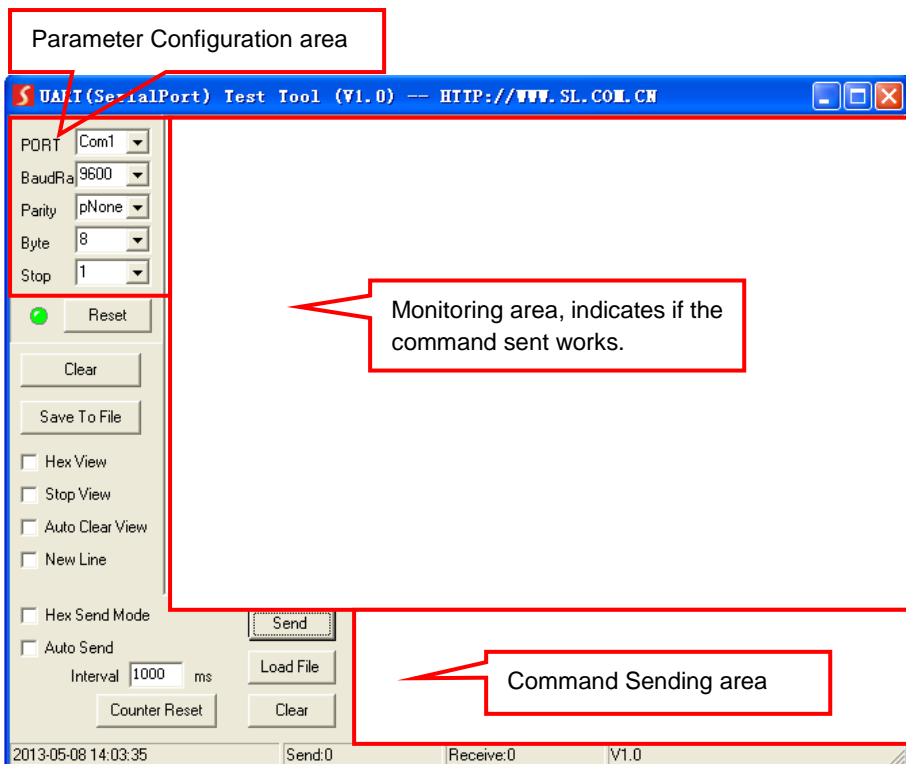
4.4.2 Basic Settings

First to connect SC51T with all input devices and output devices needed, then to connect it with a computer which is installed with RS232 control software. Double-click the software icon to run this software.

Here we take the software **CommWatch.exe** as example. The icon is showed as below:

The interface of the control software is showed as below:

Parameter Configuration area

Monitoring area, indicates if the command sent works.

Command Sending area

Please set the parameters of COM number, bound rate, data bit, stop bit and the parity bit correctly, and then you are able to send command in Command Sending Area.

4.4.3 RS232 Communication Commands

Communication protocol: RS232 Communication Protocol

Baud rate: 9600   Data bit: 8   Stop bit: 1   Parity bit: none

Command	Function	Feedback Example
50600%	MUTE line audio	LINE Mute on
50601%	UnMute line audio	LINE Mute off
50602%	Line audio volume up	LINE Volume: XX
50603%	Line audio volume down	LINE Volume: XX
50604%	Lock the front panel buttons	key lock
50605%	Unlock the front panel buttons	key unlock
501XX%	Preset the volume. The XX is ranging from 00 to 99	LINE Volume: XX
502XX%	Preset the brightness. The XX is ranging from 00 to 99	Brightness: XX

503XX%	Preset the contrast. The XX is ranging from 00 to 99	Contrast: XX
504XX%	Preset the saturation. The XX is ranging from 00 to 99	Saturation: XX
505XX%	Preset the sharpness. The XX is ranging from 00 to 07	Sharpness: XX
50606%	Auto-adjust the input parameter(VGA only)	pc auto
50607%	Auto-adjust the color temperature	Color Temp: XX
50608%	ZOOM the image, set the aspect ratio	Aspect Ratio: XX
50609%	OK, for OSD selection	key: ok
50610%	LEFT button	key: left
50611%	RIGHT button	key: right
50612%	UP button	key: up
50613%	DOWN button	key: down
50614%	set the picture mode	Picture Mode : XX
50615%	SM audio mode	Sound Mode: XX
50616%	MENU button	key: menu
50617%	Reset to factory defaults	factory reset
50618%	EXIT button	key: exit
50619%	Change the resolution to 1360X768 HD	resolution:1360*768
50620%	Change the resolution to 1920X1200 WUXGA	resolution:1920*1200
50621%	Change the resolution to 1600X1200 UXGA	resolution:1600*1200
50626%	Change the resolution to 1024X768 XGA	resolution:1024*768
50627%	Change the resolution to 1280X720 720P	resolution:1280*720
50628%	Change the resolution to 1280X800 WXGA	resolution:1280*800
50629%	Change the resolution to 1920X1080 1080P	resolution:1920*1080
50630%	Check the volume level	LINE Volume: XX MIC Volume: XX
50631%	Check the input source	Source: XXXXXX
50632%	Check the output resolution	Resolution: XXXXXXXX
50633%	Check the image mode	Picture Mode : XX
50634%	Check the audio mode	Sound Mode: XX
50635%	Check the image aspect ratio	Aspect Ratio: XX
50636%	Check the brightness	Brightness: XX
50637%	Check the contrast	Contrast: XX
50638%	Check the saturation	Saturation: XX
50639%	Check sharpness	Sharpness: XX
50640%	Check the color temperature	Color Temp: XX
50646%	Enable MIC Volume bar display	Volume Bar: Display

50647%	Disable MIC Volume Bar display	Volume Bar: No Display
50648%	Enable HDMI embedded audio output	Digital Sound Output: Enable
50649%	Disable HDMI embedded audio output	Digital Sound Output: Disable
50651%	Check Volume Bar display status	Volume Bar: XXXXXXXX
50652%	Check Digital audio output status	Digital Sound Output: XXXXXXXX
50655%	Freeze output image	Freeze: Enable
50656%	Cancel the freezing of output image	Freeze: Disable
50698%	Software (inside program) update	
50701%	Switch to HDMI 1 input (INPUT 1)	switch to hdmi1
50702%	Switch to HDMI 2 input (INPUT 2)	switch to hdmi2
50703%	Switch to HDMI 3 input (INPUT 3)	switch to hdmi3
50704%	Switch to VGA 1 input (INPUT 4)	switch to vga1
50705%	Switch to VGA 2 input (INPUT 5)	switch to vga2
50706%	Choose HDMI embedded audio as HDMI audio input for port **HDMI 1** (INPUT 1)	HDMI1 AUDIO
50707%	Choose external audio as HDMI audio input for port **HDMI 1** (INPUT 1)	LINE1 AUDIO
50708%	Choose HDMI embedded audio as HDMI audio input for port **HDMI 2** (INPUT 2)	HDMI2 AUDIO
50709%	Choose external audio as HDMI audio input for port **HDMI 2** (INPUT 2)	LINE2 AUDIO
50710%	Choose HDMI embedded audio as HDMI audio input for port **HDMI 3** (INPUT 3)	HDMI3 AUDIO
50711%	Choose external audio as HDMI audio input for port **HDMI 3** (INPUT 3)	LINE3 AUDIO
50720%	Mute LINE audio & MIC audio	LINE Mute On
		MIC Mute On
50721%	Unmute LINE audio & MIC audio	LINE Mute Off
		MIC Mute Off
50722%	Mute MIC audio	MIC Mute On
50723%	Unmute MIC audio	MIC Mute Off
50724%	MIC volume up	MicVolume ++
50725%	MIC volume down	MicVolume --
508XX%	Set MIC volume to XX	MIC Volume: XX
50751%	Check if the LINE audio is mute or not	LINE Mute On/Off
50752%	Check if the MIC audio is mute or not	MIC Mute On/Off
50753%	Check the freeze status	Freeze: Enable/Disable

50754%	Check the panel locked status	Panel Locked/Unlocked
50787%	Enable serial control mode 1 (control SC51T & far-end from local)	Pc control far end
50788%	Enable serial control mode 2 (control SC51T from local or far-end)	Far end control 51T
50761%	Not display mute icon of LINE audio in OSD	ICON LINE Mute: ENABLED
50762%	Display mute icon of LINE audio in OSD	ICON LINE Mute: DISABLED
50763%	Not display mute icon of MIC audio in OSD	ICON MIC Mute: ENABLED
50764%	Display mute icon of MIC audio in OSD	ICON MIC Mute: DISABLED
50765%	Not display freeze icon in OSD menu	ICON Freeze: ENABLED
50766%	Display freeze icon in OSD menu	ICON Freeze: DISABLED
50780%	Enable HDCP	HDMI OUT HDCP On
50781%	Disable HDCP	HDMI OUT HDCP Off
50644%	Display channel display menu when switching	OSD Source: Display
50645%	Not display channel display menu when switching	OSD Source: No Display
50650%	Check if display the channel display menu when switching	OSD Source: XXXXXX
50782%	EDID management, copy the best resolution data of one output to one input automatically	
50785%	Enable automatically source detecting (i.e. auto-switching)	Open　Source Auto
50786%	Disable automatically source detecting (i.e. manual-switching)	Close　Source Auto
50670%	Move the image to right	ADJUST　OUTPUT X XX
50671%	Move the image to left	ADJUST　OUTPUT X XX
50672%	Move up the image	ADJUST　OUTPUT Y XX
50673%	Move down the image	ADJUST　OUTPUT Y XX
50674%	Stretch left from left side (increase image width)	ADJUST　OUTPUT WIDTH XX
50675%	Pull right from left side (decrease image width)	ADJUST　OUTPUT WIDTH XX

50676%	Stretch upwards from top side (increase image height)	ADJUST OUTPUT HEITHT XX
50677%	Stretch upwards from down side (decrease image height)	ADJUST OUTPUT HEITHT XX
50678%	Enable screen output adjusting (then able to adjust screen output through OSD menu)	Open output position adjust
50679%	Disable screen output adjusting	Close output position adjust
50680%	Select VGA source for INPUT 4 (VGA 1)	Input4 Select VGA1 SWITCH TO VGA1
50681%	Select YPbPr source for INPUT 4 (VGA 1)	Input4 Select YPbPr1 SWITCH TO YPbPr1
50682%	Select C-video source for INPUT 4 (VGA 1)	Input4 Select AV1 SWITCH TO AV1
50683%	Select VGA source for INPUT 5 (VGA 2)	Input5 Select VGA2 SWITCH TO VGA2
50684%	Select YPbPr source for INPUT 5 (VGA 2)	Input5 Select YPbPr2 SWITCH TO YPbPr2
50685%	Select C-video source for INPUT 5 (VGA 2)	Input5 Select AV2 SWITCH TO AV2
50686%	Enable CEC	Enable HDMI CEC
50687%	Disable CEC	Disable HDMI CEC
50791%	HDCP on	HDCP ON
50792%	HDCP off	HDCP OFF
50699%	Check the system version	VX.X.X

Note: For the command with background color, it is available only when switched to corresponding input port.

For example, when switched to INPUT1 (HDMI1), and then choose HDMI embedded audio/external audio as HDMI audio of this port, it can be successfully set, and the feedback is "set in HDMI1 port".

4.4.4 Control SC51T or 3rd Party Device from Local

Firstly, connect the RS232 port of SC51T to RS232 port of PC.

Secondly, send command **50787%** (serial control mode 1, factory default) via RS232 communication software.

Lastly, send the right command of SC51T or other remote RS232 device connected in present system. Connect as below:
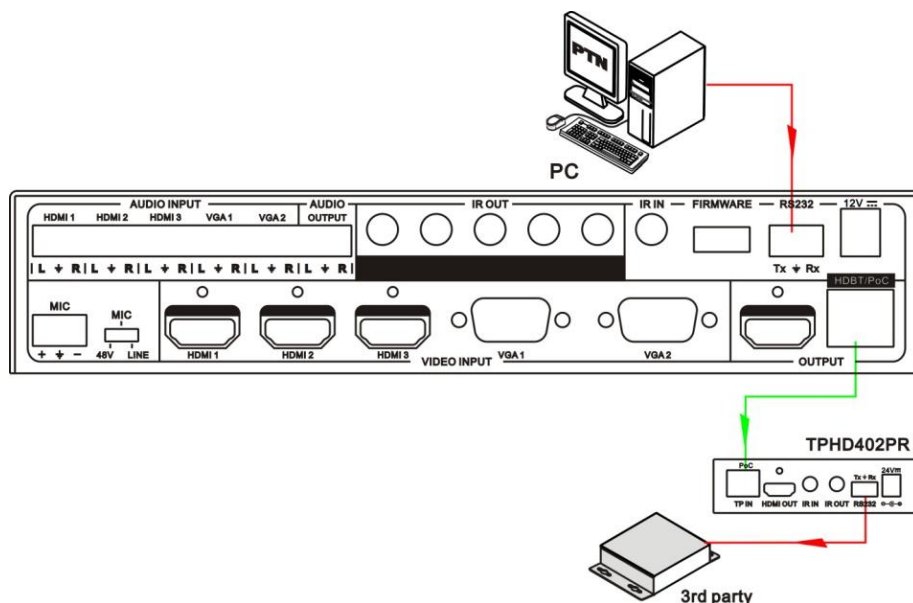
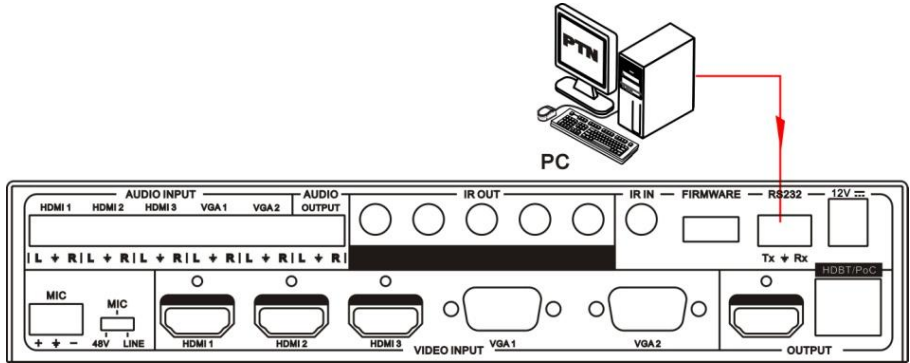**Control SC51T or 3rd party device from local**

4.4.5 Control SC51T from Local or Remote

● **Control SC51T from local**

Firstly, connect the RS232 port of SC51T to RS232 port of PC.

Secondly, send command **50788%** via RS232 communication software.

Lastly, send the right command to control SC51T. Connect as below:

Control SC51T from local

● **Control SC51T from remote**

Firstly, connect the RS232 port of far-end RS232 device to RS232 port of PC.

Secondly, send command **50788%** via RS232 communication software.

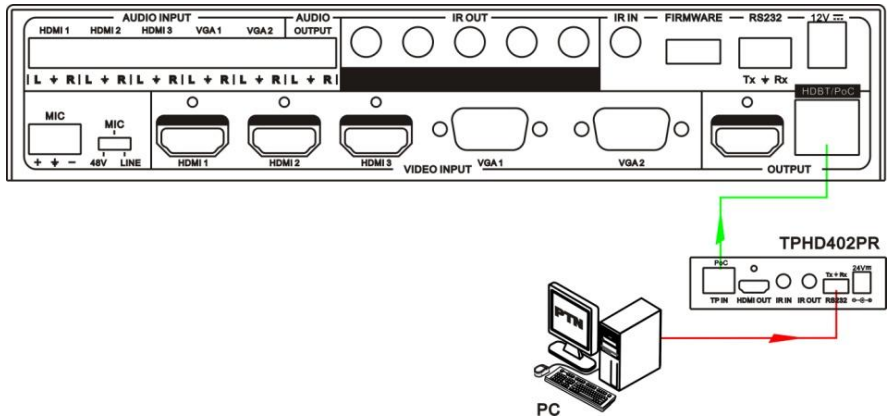Lastly, send the right command to control SC51T. Connect as below:



Control SC51T from remote

4.5 Operations in OSD Menu

SC51T provides a powerful OSD operation menu, contains 4 parts: optional settings, image settings, audio settings and system setting etc.

Press MENU button on front panel (or MENU button on IR remote/send command **50616%**) to enter in OSD menu, so it is able to do some settings through the OSD menu.

4.5.1 Option

Includes Software Update (USB), Output Adjust, Input4 Select and Input5 Select.
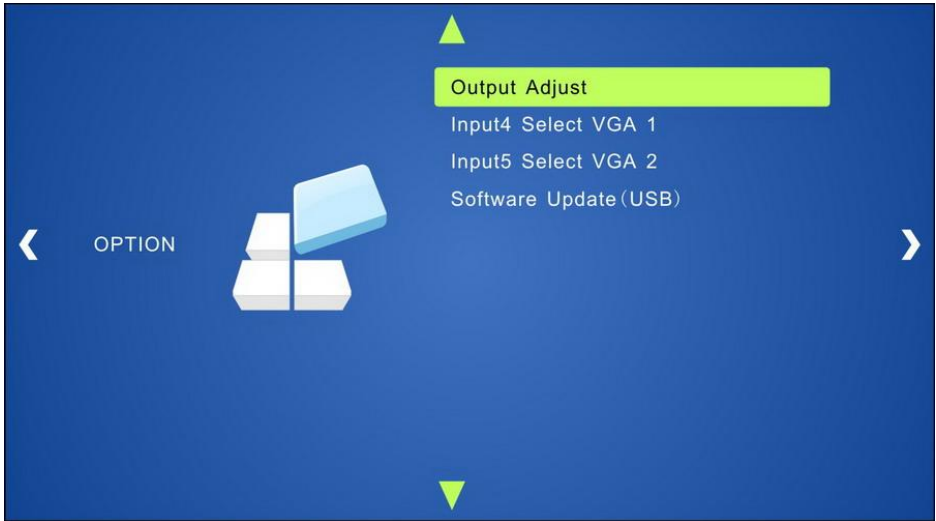
Software Update (USB): Insert the USB flash disk with updating file to USB port of SC51T, to update the software through this menu.

Output Adjust: Adjust output image position (X: horizontal direction and Y: vertical direction) and ratio aspect (width and height).

Input4 Select: Select video source format for VGA input, includes AV 1 (C-video signal), VGA 1 (VGA signal) and YPbPr 1 (Component video signal). Use ENTER button to select the right source format.

Input5 Select: Select video source for VGA input, includes AV 2 (C-video signal), VGA 2 (VGA signal) and YPbPr 2 (Component video signal). Use ENTER button to select the right source format.

For INPUT4 & INPUT5, when change for new format signal:

1. Firstly, please select a format through this menu (the signal format changed while the video source is still the same).
2. Secondly, switch off the present signal channel (e.g. switch to another channel).
3. Thirdly, switch to channel INPUT4/INPUT5 again.

4.5.2 Picture

Including Picture Mode, Color Temperature, Aspect Ratio, Noise Reduction, Screen and Color Range.

Please check the picture below:
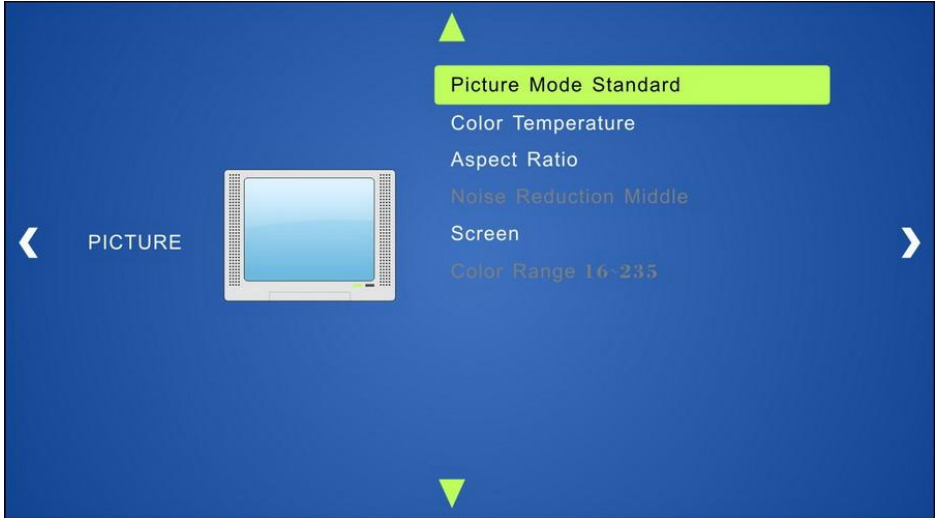
Picture mode: Includes Dynamic, Standard, Mild, and User. And only in User mode, it is able to set the image contrast and brightness.

Color Temperature: Includes Cool, Medium, Warm and User. And only in User mode, it is able to set values for Red, Green and Blue (RGB).

Aspect Ratio: Includes Auto, 4:3, 16:9, Zoom1, Zoom2, Just Scan, Panorama, and Point To Point. VGA format only supports 4:3, 16:9 and Point to Point.

Noise Reduction (not for VGA format): Includes Off, Low, Middle, High and Default.
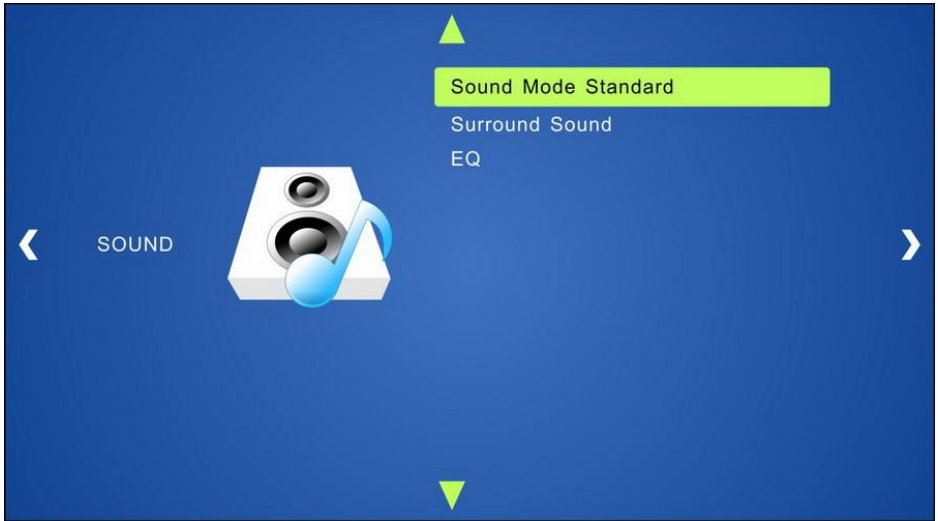
Screen: (not for HDMI source): Includes Auto Adjust, Horizontal, Vertical, Size, and Phase.

Color Range (not for VGA format): Includes 0~255 and 16~235, use ENTER button to select the color range.

4.5.3 Sound

Including Sound Mode, Surround Sound and EQ.
Please check the picture below:

Sound mode: Includes Standard, Music, Movie, Sports and User. Only User mode supports to set treble and bass.

Surround Sound: Includes Off, Surround and SRS Trusurround XT.

EQ: To adjust the sound balance.

4.5.4 Setup

Including OSD Language, Blending, HDMI CEC and OSD Duration.

OSD Language: Supports 14 languages, including English (default), Chinese etc.

Blending: Includes Low, Middle, High and Off. Use ENTER button to select.

HDMI CEC: Enable/disable CEC and auto-standby function. Default: CEC on, STANDBY on.

OSD Duration: Includes 5 s, 10 s, 15 s and Off. "s" is for Second.

4.6 Instructions of VGA Converting Cable

As VGA source supports YPbPr and C-video source, SC51T provides with 2 VGA converting cables to compliant with these signals.

When need to select these signals as input source, please switch to channel INPUT 4 (or INPUT 5), and then set the signal type in OSD. And then switch to other input channel and connect INPUT 4 (or INPUT 5) with corresponding source device. At last, please switch to INPUT4 (or INPUT 5) again.

● **Connect with Component Video (YPbPr) Source**

A. Operation Examples:

1. Via front panel buttons & OSD

Press **MENU** button on front panel to enter in OSD, and then enter in **OPTION** setting menu: set "INPUT 4 Select" to **YPbPr1**, and "INPUT 5 Select" to **YPbPr2**. After setting, press **SOURCE/AUTO** button on front panel to switch to YPbPr1 or
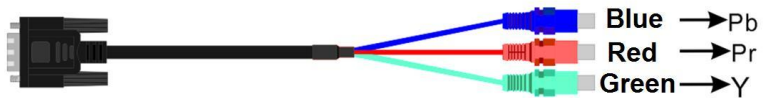
YPbPr2 source.

2. **Via RS232 commands**

    Send command **50681%** (or **50684%**) to switch to YPbPr1 (or YPbPr2) source.

3. **Via IR remote & OSD**

    Press **MENU** button on IR remote to enter in OSD, and then enter in **OPTION** setting menu: set "INPUT 4 Select" to **YPbPr1**, and "INPUT 5 Select" to **YPbPr2**. After setting, press **INPUT 4** (or **INPUT 5**) button to switch to YPbPr1 (or YPbPr2) source.

B. Connecting the VGA converting cable like this:

● **Connect with Composite Video (C-VIDEO) Source**

A. Operation Examples:

1. **Via front panel buttons & OSD**

    Press **MENU** button on front panel to enter in OSD, and then enter in **OPTION** setting menu: set "INPUT 4 Select" to **AV1**, and "INPUT 5 Select" to **AV2**. After setting, press **SOURCE/AUTO** button on front panel to switch to AV1 or AV2 source.
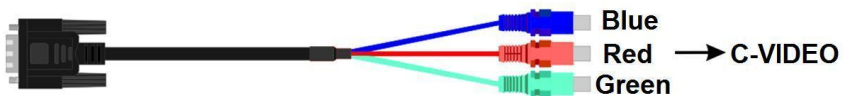
2. **Via RS232 commands**

    Send command **50682%** (or **50685%**) to switch to YPbPr1 (or YPbPr2) source.

3. **Via IR remote & OSD**

    Press **MENU** button on IR remote to enter in OSD, and then enter in **OPTION** setting menu: set "INPUT 4 Select" to **AV1**, and "INPUT 5 Select" to **AV2**. After setting, press **INPUT 4** (or **INPUT 5**) button to switch to AV1 (or AV2) source.

**B. Connecting the VGA converting cable like this:**

5. Specification

Video Input		Video Output	
Input	3 HDMI 2 VGA	Output	1 HDMI 1 HDBaseT
Input Connector	3 female HDMI 2 female VGA (15 pin)	Output Connector	1 female HDMI 1 RJ45
Video Signal	HDMI, YPbPr, C-video, VGA	Video Signal	1 HDMI 1 HDBaseT
IR Input		**IR Output**	
Input	1 IR IN	Output	5 IR OUT
Input Connector	3.5mm mini jack	Output Connector	3.5mm mini jack
Video General			
Resolution Range	1024x768, 1280x720, 1280x800, 1920x1080, 1600x1200, 1920x1200	Bandwidth	HDMI:4.95Gbps(1.65Gbps per color) C-Video:150MHz YPbPr: 170MHz VGA: 375MHz
Maximum Pixel Clock	165MHz	Video Impedance	75Ω
Gain	0dB	Input / Output Level	0.5V~2.0Vp-p
HDCP	Compliant with DVI & HDMI 1.3 standards		
Audio Input		**Audio output**	
Input	3 Dual-mono stereo audio for HDMI 2 Dual-mono stereo audio for VGA (Support C-VIDEO, YPbPr, VGA)	Output	1 stereo
Input Connector	3P captive (3.81mm)	Output Connector	3P captive (3.81mm)
Input Impedance	>10kΩ	Output Impedance	50KΩ
Audio General			
Frequency Response	20Hz~20K Hz	Stereo Channel Separation	>80dB @1KHz
CMRR	>90dB @20Hz to 20K Hz		
Control Parts			

Control/ Remote	IR remote, Buttons & RS232	Pin Configuration	2 = TX, 3 = RX, 5 = GND
General			
Temperature	-20 ~ +70℃	Humidity	10% ~ 90%
Power Supply	DC12V ± 0.5V	Power Consumption	**8W**, supply power to SC51T and TPHD402PR separately **16W**, SC51T supplies power to TPHD402PR
Case Dimension	W220x H44x D148mm	Product Weight	0.67Kg

6. Panel Drawing
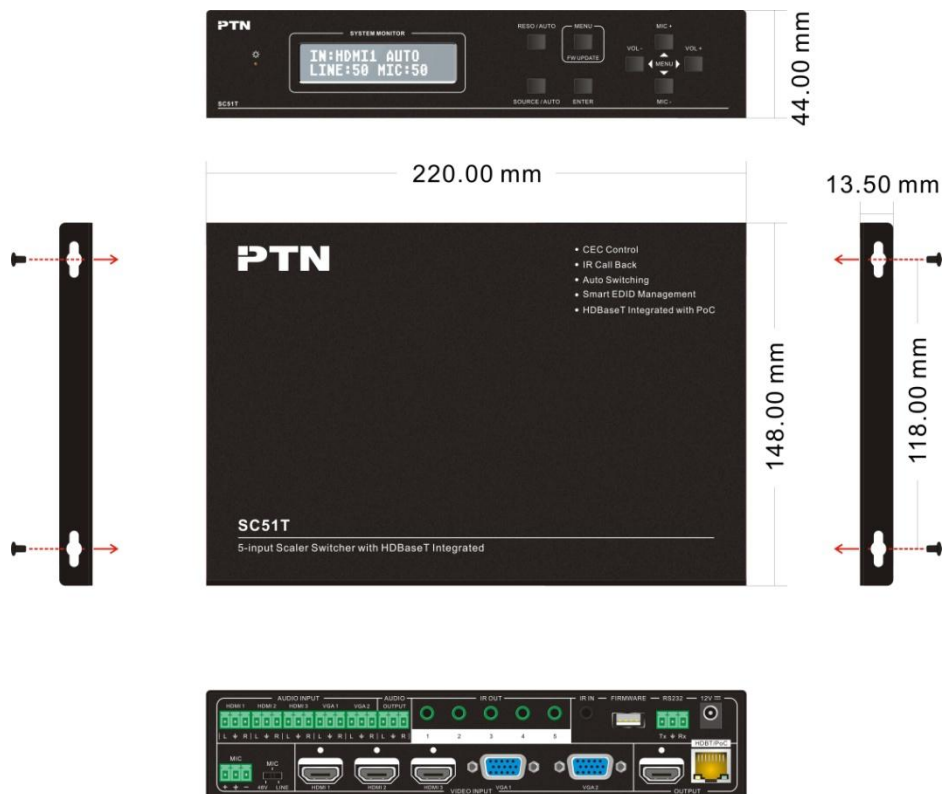
7. Troubleshooting & Maintenance

1) When output image is with snowflake, such as the projector output with snowflake. Generally this is not a unit faulty,

- Caused by a bad quality of cable. Please try another high quality cable.
- The video cables are loose, please connect again.

2) When it is not able to manage EDID, maybe the HDMI cable is broken or loose.

3) When user cannot control the switcher by computer through its COM port, please check the COM port number in the software and make sure the COM port is in good condition.

4) If the **POWER** indicator doesn't work or no respond to any operation, please make sure the power cord connection is good.

5) When switching , there is no output image:

- Check with oscilloscope or multimeter if there is any signal at the input/output end. If there is no signal input/output, it may be the input/output connection cord broken or the connectors loosen. Please change for another cable or connect again.

- If it is still the same after the above checking, maybe there is something wrong in the switcher. Please send it to the dealer for fixing.

6) If the static becomes stronger when connecting the video/audio connectors, it probably due to the incorrect grounding, please correct it otherwise it would damage the switcher.

7) If it is not able to control the scaler switcher from front panel buttons, but able through RS232 commands, maybe the front panel buttons are locked. Please send command **50605%** to unlock.

8) If the scaler switcher cannot be controlled by the buttons on the front panel, RS232 port or IR remote, the switcher may have broken. Please send it to the dealer for repairing.

8. Safety Operation Guide

In order to guarantee the reliable operation of the equipments and safety of the staff, please abide by the following proceeding in installation, using and maintenance:

1) The system must be earthed properly. Please do not use two blades plugs and ensure the alternating power supply ranged from 100v to 240v and from 50Hz to 60Hz.

2) Do not put the device in a place of too hot or too cold.

3) As the power generating heat when running, the working environment should be maintained fine ventilation, in case of damage caused by overheat.

4) Cut off the general power switch in humid weather or left unused for long time.

5) Before following operation, ensure that the alternating current wire is pull out of the power supply:
● Take off or reship any components of the equipment.
● Take off or rejoin any pin or other link of the equipment.

6) As to non-professional or without permission, please DO NOT try to open the casing of the equipment, DO NOT repair it on your own, in case of accident or increasing the damage of the equipment.

7) DO NOT splash any chemistry substance or liquid in the equipment or around.

9. After-sales Service

1) If there appear some problems when running SC51T, please check and deal with the problems reference to this user manual. Any transport costs are borne by the users during the warranty.

2) You can email to our after-sales department or make a call, please tell us the following information about your cases.
- Product version and name.
- Detailed failure situations.
- The formation of the cases.

3) We offer products for **five-year warranty**, which starts from the first day you buy this product (The purchase invoice shall prevail).

4) Any problem is same with one of the following cases listed, we will not offer warranty service but offer for charge.
- Beyond the warranty.
- Damage due to incorrectly usage, keeping or repairing.
- Damage due to device assembly operations by the maintenance company non-assigned.
- No certificate or invoice as the proof of warranty.
- The product model showed on the warranty card does not match with the model of the product for repairing or had been altered.
- Damage caused by force majeure.

Remarks: For any questions or problems, please try to get help from your local distributor, or email PTN at: support@PTN-electronics.com.

![PTN logo](www.PTN-electronics.com)

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